WHAT IS CLAIMED IS

1. A photosensitive thin film of thermally-assisted, organometallic, sol-gel derived glass doped with organometallic photosensitizer, including R-M-X inclusions where X is a photolabile moiety, M is a metal, and R is a volatile organic compound, said film having a thickness in excess of one micron.

2. A thin film as in claim 1, said film being formed on a substrate having a surface including silicon and oxygen.

3. A thin film as in claim 2 wherein said surface comprises SiO_2 and is a silica enriched thin layer on a silicon substrate.

4. A thin film as in claim 1, said film being formed on a glass substrate.

5. A thin film as in claim 1, said film where R is taken from a class of low-volatile organic molecules consisting of CH_3, CH_3-CH_2 and CH_3-CH-2-CH_2 and (Cp), M is taken from a class consisting of metals in group IVA and IVB, transition metals and rare earth metals, and X is taken from a class consisting of and photolabile moiety including halogens and carbonyls.

6. A thin film as in claim 3 where R comprises CH_2, M comprises Sn, and X comprises I.

7. A thin film as in claim 3 wherein R comprises cyclopentadienyl.

8. A thin film as in claim 3 wherein M comprises T.

9. A thin film as in claim 3 wherein X comprises Cl.

10. A thin film as in claim 4 wherein R comprises CH_3.

11. A thin film as in claim 4 wherein M comprises Pb.

12. A thin film as in claim 4 wherein X comprises Cl.

13. A thin film as in claim 2 including thereon a mask opaque to light in the UV and visible ranges.

14. A thin film of sol-gel derived glass on a silica substrate, said film including at least one region of Si – O – M – O – Si with adjacent regions of SiO_2, said film having a thickness substantially in excess of one micron and being free of cracks.

15. A method for forming a photosensitive sol-gel film including regions of different indices or refraction, said method comprising the steps of forming a photosensitive sol-gel film including an organometallic photosensitizer on a silica substrate, exposing said film through a mask to light of a wavelength and for a time for unbinding different amounts of metal constituents and of said sensitizer in different sections along at least a first channel thereof, exposing said film to heat at a first temperature and for a time to drive off the unbound sensitizer and to bind the metal constituents of said sol-gel film, and exposing said layer to heat at a second temperature higher than said first temperature for a time to unbind and drive off the organic constituents of said sol-gel film.